

What is claimed is:

1. A minimally invasive coronary anastomosis procedure for a blocked coronary artery of a heart, the procedure comprising:

providing an incision in an intercostal space between two ribs of a patient, the  
5 incision providing access to a selected anastomosis site;

inserting a spreader device between the two ribs, the spreader device having a first  
end for engaging the first rib and a second end for engaging the second rib;

lifting the spreader device such that the second and juxtaposed ribs are elevated  
with respect to the first rib thereby exposing an internal mammary artery sufficiently for  
direct visualization;

dissecting the internal mammary artery; and

performing the anastomosis through the incision using the internal mammary  
artery.

2. The procedure of claim 1 wherein the patient is positioned on a surgical table, and  
wherein the spreader device is lifted using a lifting mechanism that is mounted to the surgical  
table and extends upwardly to a position above the patient.

3. A device for use in a surgical procedure in which an incision is made between two  
20 juxtaposed ribs of a patient, the device comprising:

a first arm member having a proximal end portion and a distal end portion, the  
distal end portion having a rib engaging blade, and the distal and proximal end portions  
being hingedly attached to each other;

a second arm member having a proximal end portion and a distal end portion, the distal end portion having a rib engaging blade and the distal and proximal end portions being hingedly attached to each other;

a mechanism that operably connects the first and the second arm members at the proximal end such that the arm members are movable toward and away from each other; and

a retractor lifting device, the device comprising a blade portion for engaging the blade of the second arm member, and a post member secured to an operating table on which the patient lies, and a handle section to which the blade section is movably attached, and a mechanism for moving the blade portion in an upward direction thereby lifting the blade of the second arm member which results in lifting a section of the patient's ribs.

4. The device of claim 3 wherein the mechanism includes a rack bar fixedly attached to the first arm member at one end and at another end movably engages the proximal end portion of the second arm member such that the second arm member moves away and toward the first arm member along the rack bar.

5. The device of claim 3 wherein the first arm member further includes two hinge sections and a mid-section that is hingedly attached to the proximal end portion at one end and to the distal end portion at another end.

6. The device of claim 3 wherein the second arm member further includes two hinge sections and a mid-section that is hingedly attached to the proximal end portion at one end and to the distal end portion at another end.

5 7. The device of claim 3 wherein the distal end portion of the first arm member further includes a plurality of fingers extending away from the blade for retaining fatty tissue away from the incision.

8. A minimally invasive coronary anastomosis procedure for a blocked coronary artery of a heart, the procedure comprising:

providing an incision in an intercostal space between two ribs of a patient, the incision providing access to a selected anastomosis site;

inserting into the incision a first blade to engage a first rib and a second blade to engage a second rib, and spreading apart the first and second blades to spread apart the first and second ribs;

lifting the second blade to offset the second blade and rib relative to the first blade and rib thereby exposing an internal mammary artery to direct visualization;

dissecting the internal mammary artery; and  
performing the anastomosis.

9. The procedure of claim 8 wherein the patient is positioned on a surgical table, and wherein the second blade is lifted using a lifting mechanism that is mounted to the surgical table and extends upwardly to a position above the patient.

10. The procedure of claim 8 and further including:  
reducing movement of the heart; and  
suturing the internal mammary artery to an incision made in the blocked artery  
while the movement of the heart reduced.

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11. A minimally invasive coronary anastomosis procedure for a blocked coronary  
artery of a heart, the procedure comprising:

providing an incision in an intercostal space between two juxtaposed ribs of a  
patient, the incision providing access to a selected anastomosis site on the blocked  
coronary artery;

inserting a spreader device between the two juxtaposed ribs such that when the  
spreader device is operated, the ribs are spread apart widening the incision;

dissecting an internal mammary artery;

reducing movement of the heart;

incising the blocked coronary artery downstream from the blockage; and

suturing the dissected internal mammary artery to the incision on the blocked  
coronary artery at the selected anastomosis site.

12. The procedure of claim 11 wherein the patient is positioned on a surgical table,

and wherein the spreader device is lifted using a lifting mechanism that is mounted to the  
surgical table and extends upwardly to a position above the patient.

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13. The procedure of claim 11 wherein the dissected internal mammary artery is sutured between the two spaced-apart clamped positions on the occluded coronary artery.

14. A device for use in a surgical procedure in which an incision is made between two juxtaposed ribs of a patient, the device comprising:

a first arm member having a proximal end portion and a distal end portion, the distal end portion having a rib engaging blade, and the distal and proximal end portions being hingedly attached to each other;

a second arm member having a proximal end portion and a distal end portion, the distal end portion having a rib engaging blade and the distal and proximal end portions being hingedly attached to each other;

a mechanism that operably connects the first and the second arm members at the proximal end such that the arm members are movable toward and away from each other; and

a rib offsetting device, the device being operably coupled to the blade of the second arm member, and adapted to move the blade portion of the second arm member in an upward direction thereby lifting the blade of the second arm member which results in lifting a section of the patient's ribs.

15. The device of claim 14 wherein the mechanism includes a rack bar fixedly attached to the first arm member at one end and at another end movably engages the proximal end portion of the second arm member such that the second arm member moves away and toward the first arm member along the rack bar.

16. The device of claim 14 wherein the first arm member further includes two hinge sections and a mid-section that is hingedly attached to the proximal end portion at one end and to the distal end portion at another end.

17. The device of claim 14 wherein the second arm member further includes two hinge sections and a mid-section that is hingedly attached to the proximal end portion at one end and to the distal end portion at another end.

18. The device of claim 14 wherein the distal end portion of the first arm member further includes a plurality of fingers extending away from the blade for retaining fatty tissue away from the incision.